

is apparent, and some where it is altogether fiery crimson. In the females it is apparently the same; for I have some with blackish rumps, while others show a tinge of crimson, which colour, in the adult birds, extends all over the rump.

XXXI.—*On the Nomenclature of the Foraminifera.* By W. K. PARKER, F.R.S., T. RUPERT JONES, F.G.S., and H. B. BRADY, F.L.S., F.G.S.

[Continued from p. 179.]

97. *Soldania limia*, D'Orb. Pl. VIII. fig. 1.

"*Hammonia circularis planissimæ*," &c.; Soldani, Testac. vol. i. pt. 1. p. 62, pl. 53. fig. C. D'Orb. *op. cit.* p. 281. no. 4.

"*Hab.* The Mediterranean."

Without professing quite to understand the details of Soldani's figure, we have little hesitation in regarding this as a variety of *Cornuspira foliacea*. Figs. *A, B, C, D, G, & H*, pl. 47, are also either *Cornuspiræ* or *Spirillinae*. They are of minute size (except fig. *H*), and hence were greatly misunderstood with the imperfect microscopes then in use. Larger specimens of Foraminifera were drawn by Soldani's artists much more true to nature, and often remarkably so.

98. *Soldania orbicularis*, D'Orb. Pl. VIII. fig. 2.

"*Hammonia*;" Soldani, Testac. vol. i. pt. 1. p. 60, pl. 47. fig. H. D'Orb. *op. cit.* p. 281. no. 5.

"*Hab.* The Mediterranean."

Whatever decision may be arrived at with respect to the last-named species must obtain also with this, which has the same characters, save that slight constrictions at the periphery appear to indicate in this form the partial subdivision of one or more turns of the spire into chambers. In both cases the earlier turns of the spire are not septated. With some hesitation, we are disposed to consider this also a subvarietal modification of *Cornuspira*. Possibly the septations have been deepened by the artist.

99. *Soldania annulata*, D'Orb. Pl. VIII. fig. 3.

"*Hammonia trivoluta*;" Soldani, Testac. vol. i. pt. 1. p. 59, pl. 47. fig. C. D'Orb. *op. cit.* p. 282. no. 6.

"*Hab.* The Mediterranean."

Very doubtful; either another aspect of *Cornuspira* or, perhaps, a granular *Spirillina*, in which the exostoses have

been mistaken for small chambers, under a badly defining microscope. (See no. 97.)

100. *Vertebralina striata*, D'Orb. Pl. VIII. fig. 27.

"Lituus" &c.; Soldani, Testac. vol. i. pt. 1. p. 76, pl. 67. figs. vv-zz. D'Orb. *op. cit.* p. 283. no. 1.

"Hab. The Mediterranean, the Red Sea, and the South Seas at Rawack."

See notes on Models no. 22 and no. 81. (Fig. zz is copied.)

101. *Polystomella crispa*, Linné, sp. Pl. XII. fig. 154.

"Nautili striati communes (*crispi* Linnæi);" Soldani, Testac. vol. i. pt. 1. p. 54, pl. 34. figs. cc, ee, G, H. D'Orb. *op. cit.* p. 283. no. 1.

"Hab. The Atlantic shores of France, the Mediterranean, and the Adriatic."

See our note on Model no. 45. Fig. ee is *Polystomella striatopunctata*; the same figure is again referred to by D'Orbigny, at p. 289, as *Robulina sulcata*!

Fig. cc is an explanate *Polystomella*, like *P. macella* (Ann. N. H. ser. 3. vol. v. p. 104); dd is *Cristellaria cultrata*; ee & ff are forms of *P. striatopunctata* (Ann. N. H. l.c. p. 103); G & H are umbonate *P. crispæ*; K & L are *Rotaliæ*. Pl. 33. fig. F is also a good umbonate *P. crispa*. See Phil. Trans. vol. clv. pp. 399 &c.

102. *Polystomella strigillata*, F. & M. sp. Pl. XII. fig. 155.

"Nautili striati" &c.; Soldani, Testac. vol. i. pt. 1. p. 54, pl. 34. fig. I. D'Orb. *op. cit.* p. 284. no. 4.

"Hab. The Tau lagoon, and the coast of Africa, according to Fichtel and Moll." (Mediterranean, Soldani.)

This is umbilicate, and therefore cannot be F. & M.'s *P. strigillata*: on the contrary, it is a somewhat impoverished form, between *P. crispa* and *P. macella*, as, indeed, it stands in Soldani's arrangement on the plate.

103. *Peneroplis planatus*, F. & M. sp. Pl. VIII. fig. 28.

"Testæ hammoniformes seu *lituitatæ* semilunares;" Soldani, Testac. vol. i. pt. 1. p. 73, pl. 64. figs. M, Q. D'Orb. *op. cit.* p. 285. no. 1.

"Hab. The Mediterranean, New Holland, and Rawack."

See Ann. N. Hist. ser. 3. vol. v. p. 180, and vol. xv. p. 231, for notes on this common species. Soldani's plates 64, 65, 66, and figs. rr, ss, tt of pl. 67, are occupied with varieties and modified individuals of *Peneroplis* and its elongate Spiroline forms (*Coscinospira*), both perfect and worn. The first trivial

name given to *Peneroplis* was "*pertusus*" by Forskål. See Ann. Nat. Hist. ser. 3. vol. xv. p. 231.

104. *Robulina cultrata*, Montfort, sp. Pl. X. fig. 84.

"*Nautili (Lenticulæ marginatæ)*;" Soldani, Testac. vol. i. pt. 1. p. 54, pl. 33. figs. B &c. D'Orb. *op. cit.* p. 287. no. 1.

"*Hab.* Living in the Adriatic; fossil in the neighbourhood of Vienna." (Mediterranean, and fossil near Sienna, *Soldani*.)

See note on Model no. 82. In pl. 33, figs. *A* & *B* are both *Cristellaria cultrata*; fig. *C* (obscured with matrix or foreign matter), *E*, *aa*, *bb*, *mm*, and *nn* are *C. calcar*; fig. *D* is a young *C. cassis*.

105. *Robulina orbicularis*, D'Orb. Pl. X. fig. 81.

"*Nuclei conico-rotundati*;" Soldani, Testac. vol. ii. App. p. 138, pl. 1. figs. 12, *p*, *P*. D'Orb. *op. cit.* p. 288. no. 2.

"*Hab.* Fossil in the neighbourhood of Sienna." (Coroncina, *Soldani*.)

This is a carinate *Cristellaria vortex*, F. & M. sp., not differing materially from the next following.

106. *Robulina vortex*, Fichtel & Moll, sp. Pl. X. fig. 82.

"*Nautili globuli*;" Soldani, Testac. vol. i. pt. 1. p. 66, pl. 59. fig. *tt*. D'Orb. *op. cit.* p. 288. no. 4.

"*Hab.* Fossil at Coroncina."

A good subordinate form. Fig. *vv* is also a carinate *C. vortex* (Ann. N. H. ser. 3. vol. v. p. 113). Soldani rightly refers also to his pl. 1. fig. 12, *p*, *P*, in the "Appendix," as being the same; this was fossil at Coroncina, the other also being fossil in the Sienna district.

107. *Robulina Soldanii*, D'Orb. Pl. X. fig. 85.

"*Nautili globuli*;" Soldani, Testac. vol. i. pt. 1. p. 66, pl. 59. fig. *vv*. D'Orb. *op. cit.* p. 288. no. 5.

"*Hab.* Fossil, Coroncina." (Near Sienna, *Soldani*.)

This connects *Cristellaria vortex* with *C. cultrata*.

108. *Robulina marginata*, D'Orb. Pl. X. fig. 89.

"*Nautili (Lenticulæ marginatæ)*;" Soldani, Testac. vol. i. pt. 1. p. 54, pl. 33. fig. *D*.

"*Nautili læves (Lenticulæ)*;" *ibid.* fig. *mm*. D'Orb. *op. cit.* p. 288. no. 6.

"*Hab.* The Adriatic, near Rimini." (The Mediterranean, *Soldani*.)

Young examples of *Cristellaria cassis*, F. & M. sp., of simple character.

(D'Orbigny gives the first of his references to Soldani as fig. L, which is a manifest error, as there is no "L" on the plate. After careful consideration, we have come to the conclusion that D was intended.)

109. *Robulina radiata*, D'Orb. Pl. X. fig. 93.

"Nautili (*Lenticulæ radiatæ*);" Soldani, Testac. vol. i. pt. 1. p. 54, pl. 33. fig. bb. D'Orb. op. cit. p. 288. no. 7.

"Hab. The Mediterranean."

A small specimen of *Cristellaria calcar*, Linn. sp.

110. *Robulina pulchella*, D'Orb. Pl. X. fig. 94.

"Nautili (*Lenticulæ radiatæ*); Soldani, Testac. vol. i. pt. 1. p. 54, pl. 33. fig. aa. D'Orb. op. cit. p. 288. no. 8.

"Hab. The Mediterranean."

Another *Cristellaria calcar*: the septation not very clearly indicated.

111. *Robulina lævigata*, D'Orb. Pl. X. fig. 95.

"Nautilus;" Soldani, Testac. vol. i. pt. 1. p. 59, pl. 47. fig. E. D'Orb. op. cit. p. 288. no. 9.

"Hab. The Mediterranean."

Referable to the type *Cristellaria calcar*. The growth of the rowelled keel has been arrested, or possibly portions of it have been broken away.

112. *Robulina sulcata*, D'Orb. Pl. XII. fig. 156.

"Nautili striati;" Soldani, Testac. vol. i. pt. 1. p. 59, pl. 33. fig. ee. D'Orb. op. cit. p. 289. no. 10.

"Hab. The Mediterranean."

This is *Polystomella striatopunctata*, and does not belong to the Cristellarian type at all.

113. *Robulina rosacea*, D'Orb. Pl. X. fig. 90.

"Nautili læves (*Lenticulæ*);" Soldani, Testac. vol. i. pt. 1. p. 44, pl. 33. fig. mm. D'Orb. op. cit. p. 289. no. 11.

"Hab. The Mediterranean."

One of the spinous varieties of *Cristellaria*, which, though the keel is but little developed, might fairly be placed with *C. calcar*. It has apparently an umbonate centre (not an uncommon character in the type), with subsidiary granules giving a rose-like pattern.

114. *Robulina calcar*, Linné, sp. Pl. X. fig. 96.

"*Nautilus papillosus*;" Soldani, Testac. vol. i. pt. 1. p. 65, pl. 59. figs. *qq, rr.* D'Orb. *op. cit.* p. 289. no. 12.

"*Hab.* The Adriatic, near Rimini." (Fossil near Sienna, *Soldani.*)

This is a keeled but tuberculate variety *, and can scarcely be accepted as the representative of the type. It resembles more or less several of Fichtel and Moll's varieties, approaching their var. *ε* most nearly. Their *Nautilus papillosus* is granular on the septa, and lacks the spinous armature of the keel, and thus differs from Soldani's figures under the same name. We shall do best to accept the trivial name appended by Montfort to his copy of Fichtel and Moll's drawing (pl. 12. figs. *a-c*), *Cristellaria rostrata*, Montf. sp.

115. *Robulina aculeata*, D'Orb. Pl. X. fig. 91.

"*Nautili carinati (Lenticulæ)*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 58. figs. *hh, mm.* D'Orb. *op. cit.* p. 289. no. 14.

"*Hab.* The Adriatic, near Rimini." (Fossil near Sienna, *Soldani.*)

Two forms of the typical *Cristellaria calcar*.

116. *Robulina Planciana*, D'Orb. Pl. XII. fig. 157.

"*Lenticulæ*;" Soldani, Testac. vol. ii. (not i. pt. 2) p. 110, pl. 26. fig. *O.* D'Orb. *op. cit.* p. 290. no. 20.

Hab. "Fossil in the neighbourhood of Sienna." (Clusentini, *Soldani.*)

This is a lenticular, umbilicate *Nonionina*, scarcely so thick relatively as most specimens of *N. umbilicatula*, but hardly worth separating from that species.

117. *Robulina rugosa*, D'Orb. Pl. IX. fig. 31.

"*Lenticulæ*;" Soldani, Testac. vol. ii. (not i. pt. 2) p. 110, pl. 26. fig. *N.* D'Orb. *op. cit.* p. 290. no. 21.

"*Hab.* Fossil in the neighbourhood of Sienna."

A nautiloid *Lituola*, sublenticular, and depressed at the umbilicus; septation entirely obscured by the rough texture of the exterior†. This may be accepted as a varietal form, closely allied to *L. canariensis*.

* Also Soldani, Sag. Oritt. p. 98, pl. 1. figs. 6, *J.*

† If the obscuration of the shell be due to rock-matrix, it may be doubtfully referred to *Cristellaria*.

118. *Robulina nitida*, D'Orb. Pl. XII. fig. 152.

Soldani, Testac. vol. ii. App. p. 141, pl. 7. figs. zz, ZZ. D'Orb. *op. cit.* p. 290. no. 22.

"*Hab.* Fossil at Coroncina." (Near Sienna and San Quirico, *Soldani*.)

This is from fossil shell-dust, and is probably an *Amphistegina*. In the Siennese Tertiary clays and sands (described in Quart. Journ. Geol. Soc. vol. xvi. p. 297 *et seq.*) *Amphistegina* occurs at Pienza, Montopoli, Castel-Arquato, and San Frediano.

119. *Robulina plicata*, D'Orb. Pl. X. fig. 80.

"*Hammoniae subrotundæ*;" Soldani, Testac. vol. i. pt. 1. p. 61, pl. 50. fig. cc. D'Orb. *op. cit.* p. 290. no. 23.

"*Hab.* Fossil at Coroncina." (Mediterranean, *Soldani*.)

A small umbonate *Cristellaria*, not separable from *C. rotulata*. The posterior angle of each chamber is somewhat produced.

120. *Robulina rotundata*, D'Orb. Pl. X. fig. 92.

"*Nautilus Lenticula*;" Soldani, Testac. vol. i. pt. 1. p. 66, pl. 60. fig. yy. D'Orb. *op. cit.* p. 290. no. 24.

"*Hab.* The Adriatic." (Fossil near Sienna, *Soldani*.)

A damaged specimen of a limbate *Cristellaria calcar*.

121. *Cristellaria consecta*, D'Orb. Pl. XI. fig. 100.

"*Litui crispatis et orbiculi*;" Soldani, Testac. vol. i. pt. 1. p. 63, pl. 55. figs. A, C, E, G.

"*Nautili Lituitati*;" Id. *ibid.* p. 64, pl. 57. fig. X. D'Orb. *op. cit.* p. 290. no. 1.

"*Hab.* Fossil at Coroncina." (Near Sienna and San Quirico, *Soldani*.)

This is the *Nautilus cassis*, var. δ , of Fichtel and Moll ("*le Pharamé perlé*" of De Montfort), which differs from their other varietal forms in the absence of beaded ornament on the early chambers and over the sutural lines. A trivial name is perhaps more convenient than the Greek letter; and on this ground De Montfort's term (latinized) *margaritacea* may be accepted. (Pl. 55. fig. A, is copied.)

122. *Cristellaria navicularis*, Montfort, sp. Pl. XI. fig. 101.

"*Litui crispatis et orbiculi*;" Soldani, Testac. vol. i. pt. 1. p. 63, pl. 55. figs. B, D. D'Orb. *op. cit.* p. 290. no. 2.

"*Hab.* Fossil at Coroncina." (Near Sienna and San Quirico, *Soldani*.)

A subvarietal modification of *C. cassis*, F. & M., in which

the chambers take on the Flabelline character to a very considerable extent. De Montfort copied Soldani's figure under the name *Scortimus navicularis*. Fig. *C* also, and others figured by Soldani, show the Flabelline tendency. See also fig. 86, which, however, is both limbate and tuberculate.

123. *Cristellaria cassis*, F. & M. sp. Pl. X. fig. 86.

"*Litui crispatis et orbiculi*;" Soldani, Testac. vol. i. pt. 1. p. 63, pl. 56. figs. I, K, &c. &c. D'Orb. *op. cit.* p. 290. no. 3.

"*Hab.* Living in the Adriatic, near Rimini; fossil at Sienna." (Fossil at San Quirico and near Sienna, *Soldani*.)

A full-grown limbate variety, with tubercles on the early chambers.

Figs. *L*, *M*, *N*, *O*, *P*, *Q*, & *R* also represent *C. cassis*.

See notes on Models nos. 44 and 83; and Ann. N. H. ser. 3. vol. v. p. 115.

124. *Cristellaria Soldanii*, D'Orb. Pl. X. fig. 87.

"*Litui crispatis et orbiculi*;" Soldani, Testac. vol. i. pt. 1. p. 63, pl. 56. fig. H. D'Orb. *op. cit.* p. 290. no. 4.

"*Hab.* Fossil at Coroncina." (Near Sienna, *Soldani*.)

Without tubercles, but with a limbate border to the outer edge of each segment. Similar in general contour to *C. consecta*, no. 121 (*margaritacea*).

125. *Cristellaria nitida*, D'Orb. Pl. X. fig. 88.

"*Nautili Lituitati*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 56. figs. O, P. D'Orb. *op. cit.* p. 291. no. 4.

"*Hab.* Fossil at Coroncina." (Near Sienna, *Soldani*.)

Soldani's figures referred to by D'Orbigny are unsatisfactory as affording a basis for a distinct name. They are somewhat irregular suborbicular *Cristellaria cassis*, with a more or less limbate septa and some scattered umbilical granules.

126. *Cristellaria marginata*, D'Orb. Pl. XI. fig. 99.

S. "*Nautilus hystrix marginatus*;" T. "*Nautilus Echinus*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 57. figs. S, T. D'Orb. *op. cit.* p. 291. no. 7.

"*Hab.* Fossil at Coroncina." (Near Sienna, *Soldani*.)

Two subvarieties of *C. calcar*. Fig. S (like the next, fig. Ss) shows no segmentation, but has traces of umbilical radiate limbation, and numerous widely scattered granules over the round part of the shell. Thus it somewhat approaches the better formed figs. *qq*, *rr*, pl. 59 (no. 114). Fig. T is an orbicular rowelled *C. calcar*, with beaded septa, like Fichtel

and Moll's var. γ , pl. 11. figs. *g, h*, in their 'Test. Micr.,' and comparable with their var. ϵ , which is named "perlé" (*marginaticea*) by De Montfort.

Fig. S, which we have copied, seems to come under *C. rostrata*, Montf. sp. (no. 114).

127. *Cristellaria elongata*, D'Orb. Pl. X. fig. 76.

"Nautili *Lituitati*: *aa, bb, Ligulae*; *cc, Cuspis*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 58. figs. *aa, bb, cc*. D'Orb. *op. cit.* p. 292. no. 11.

"*Hab.* Fossil at Coroncina." (Near Sienna and San Quirico, Soldani.)

This is a keeled subvariety of *Cristellaria crepidula*, F. & M. sp. (Fig. *aa* is copied.)

In the preceding pl. 57, figs. *V, X, Y, & Z* clearly exhibit passages from *C. cassis* to *C. crepidula*, as arranged by Soldani.

128. *Cristellaria bilobata*, D'Orb. Pl. X. fig. 78.

"*Nautilus Lituitatus, Ligula*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 57. fig. Z. D'Orb. *op. cit.* p. 292. no. 12.

"*Hab.* Fossil at Coroncina." (Near Sienna, Soldani.)

Inseparable from *C. crepidula*, except that it is carinate (see also nos. 48 & 127).

129. *Cristellaria aculeata*, D'Orb. Pl. XI. fig. 97.

"*Litius innominatus*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 57. fig. T t. D'Orb. *op. cit.* p. 292. no. 14.

"*Hab.* Fossil at Coroncina." (Near Sienna, Soldani.)

This is a very doubtful shell. If we accept it as a Foraminifer, it is more out of deference to the generally clear perception shown by Soldani than from any conviction the figure carries with it. The drawing shows no septation and no Cristellarian aperture, only a spirally coiled shell, thickly studded with tubercles, which at the margin run into spines. If it be a Foraminifer, it may be regarded as a granular or tuberculate variety of *C. calcar*, and as such nearly related to *C. rostrata*, Montfort, sp.

130. *Cristellaria tuberculata*, D'Orb. Pl. XI. fig. 102.

"*Nautilus lituitatus*;" Soldani, Testac. vol. ii. p. 13, pl. 1. fig. A. D'Orb. *op. cit.* p. 292. no. 21.

"*Hab.* The Adriatic." (Rare, fossil, at San Quirico, and not found by Soldani elsewhere.)

An intermediate variety. General contour like *C. rotulata* or *C. acutauricularis*, but having broadly and irregularly

limbate septa, and strongly tuberculate flattish centre, like some varieties of *C. cassis*. The margin is bluntly dentated by the projecting septal ribs; there is no carina. It will be well to recognize this as a subordinate suborbicular form of *C. cassis*.

131. *Cristellaria elegans*, D'Orb. Pl. XI. fig. 103.

"*Litulus elegans*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 56. fig. Q. D'Orb. *op. cit.* p. 293. no. 24.

"*Hab.* Fossil at Coroncina." (Near Sienna, *Soldani*.)

The specimen figured by Soldani is not a very good one; it apparently represents a shell with somewhat thinner edge than the last named, and with the posterior angles of the chambers exserted, but not otherwise differing materially from it. The name *C. tuberculata* may well cover wider distinctions than exist between these two forms.

132. *Cristellaria papillosa*, D'Orb. Pl. XI. fig. 98.

"*Nautilus papillosus*;" Soldani, Testac. vol. i. pt. 1. p. 66, pl. 59. fig. ss. D'Orb. *op. cit.* p. 293. no. 25.

"*Hab.* Fossil at Coroncina." (Near Sienna, *Soldani*.)

A minute and probably a young shell. It belongs to the spinous and tuberculate series, of which *Cristellaria rostrata*, Montfort, sp., may be taken as the best developed type.

133. *Cristellaria (Saracenaria) Italica*, DeFrance.
Pl. X. fig. 79.

"*Nautili (Seminula) tricosulati*;" Soldani, Testac. vol. i. pt. 1. p. 62, pl. 53. figs. A, B. D'Orb. *op. cit.* p. 293. no. 26.

"*Hab.* Living in the Adriatic, near Rimini; fossil in the neighbourhood of Sienna." (Mediterranean and fossil at San Quirico and Sienna, *Soldani*.)

See notes on D'Orbigny's Models nos. 19 and 85. (Fig. A is copied.)

134. *Nonionina melo*, D'Orb. Pl. XII. fig. 158.

"*Nautilus Melo*;" Soldani, Testac. vol. ii. p. 33, pl. 8. figs. ~~zz~~, A, B, C. D'Orb. *op. cit.* p. 293. no. 4.

"*Hab.* Fossil at Coroncina." (Near Sienna, *Soldani*.)

This is *Nonionina pompilioides*, F. & M. sp. (Fig. C is copied.)

135. *Nonionina umbilicata*, D'Orb. Pl. XII. fig. 135.

"*Nautilitæ*;" Soldani, Testac. vol. i. pt. 1. p. 66, pl. 60. fig. B. D'Orb. *op. cit.* p. 293. no. 5.

"*Hab.* Living in the Adriatic, near Rimini, and in the

Mediterranean; fossil at Bordeaux and at Sienna." (Fossil near Sienna, *Soldani*.)

Soldani's figure does not represent the same form as *D'Orbigny's* Model no. 86, though references to both are given by the latter. The model is the subglobular form known as *N. pompilioides*, F. & M., whilst *Soldani's* figure, associated with other nearly symmetrical *Planorbulinae* (figs. A-E, near *Pl. ammonoides*), arranged by him at the end of the *Cristellarian* series, is a large, subconvex, and neatly made *Truncatuline Planorbulina*, nearly allied to *Pl. Lamarckiana*, *D'Orb. sp.*, 'For. Canar.' 1839, pl. 2. figs. 13-15, and like some individuals of *Pl. rotula*, *D'Orb. sp.*, For. Foss. Vien. pl. 10. figs. 10-12. Only one face is figured. (The next figure in this group of forms, about which *Soldani* was doubtful, is fig. *F*, in pl. 61, representing *Trochammina inflata*, J. & P.)

136. *Biloculina bulloides*, *D'Orb.* Pl. VIII. fig. 4.

"*Frumentaria* Ovula*;" *Soldani*, Testac. vol. i. pt. 3. p. 228, pl. 153. figs. R, S. *D'Orb. op. cit.* p. 297. no. 1.

"*Hab.* Living in the Adriatic, near Rimini; fossil in the neighbourhood of Paris and of Bordeaux." (Mediterranean, and fossil near Sienna, *Soldani*.)

This is *Biloculina ringens*, Lamk. See note on Model no. 90, and Ann. Nat. Hist. ser. 3. vol. v. p. 469. (Fig. *S* is copied.)

137. *Biloculina elongata*, *D'Orb.* Pl. VIII. fig. 6.

"*Frumentaria Ovula*;" *Soldani*, Testac. vol. i. pt. 3. p. 228, pl. 153. figs. M, Q. *D'Orb. op. cit.* p. 298. no. 4.

"*Hab.* Fossil at Pauliac (Gironde)." (Mediterranean, and fossil(?) near Sienna, *Soldani*.)

The feeble attenuated variety, common in shallow water. See Phil. Trans. vol. clv. p. 409, pl. 17. figs. 88, 90, 91.

138. *Biloculina depressa*, *D'Orb.* Pl. VIII. fig. 5.

"*Frumentaria Lenticulae*;" *Soldani*, Testac. vol. i. pt. 3. p. 231, pl. 156. figs. yy, zz. *D'Orb. op. cit.* p. 298. no. 7.

"*Hab.* Living in the Adriatic, near Rimini; fossil at Castel-Arquato." (Mediterranean, *Soldani*.)

See note on Model no. 91, and Phil. Trans. vol. clv. p. 409.

* "*Seminula maris*," "*Sitomojas*," &c. (p. 223).

139. *Spiroloculina depressa*, D'Orb. Pl. VIII. fig. 23.

"Frumentaria *Sigma* et *Rhombos*;" Soldani, Testac. vol. i. pt. 3. p. 229, pl. 155. fig. *kk*. D'Orb. *op. cit.* p. 298. no. 1.

"*Hab.* Recent in the Mediterranean; fossil at Castel-Arquato." (Mediterranean, and probably fossil at Clusentino &c., *Soldani*.)

See note on Model no. 92. It is the *Spiroloculina planulata* of Lamarck, Ann. N. II. ser. 3. vol. v. p. 236.

140. *Spiroloculina nitida*, D'Orb. Pl. VIII. fig. 24.

"Frumentaria *Sigma* et *Rhombos*;" Soldani, Testac. vol. i. pt. 3. p. 230, pl. 155. figs. *ll*, *mm*. D'Orb. *op. cit.* p. 298. no. 4.

"*Hab.* The Atlantic shores of France." (Mediterranean, and probably fossil at Clusentino &c., *Soldani*.)

An attenuated variety of *S. planulata*.

Soldani here refers to his other figures of *Spiroloculina* (limbate varieties), 'Appendix,' pl. 9. figs. 52, *t*, *T*, *V*, and vol. i. pt. 1. pl. 61. figs. *I*, *K*, *L*, *M*.

141. *Spiroloculina limbata*, D'Orb. Pl. VIII. fig. 22.

"Frumentaria *Sigma* et *Rhombos*;" Soldani, Testac. vol. ii. p. 54, pl. 19. fig. *m*. D'Orb. *op. cit.* p. 299. no. 12.

"*Hab.* Fossil at Castel-Arquato." (Borro Cicco, *Soldani*.)

A bold variety, with inflated chambers.

142. *Spiroloculina rotundata*, D'Orb. Pl. VIII. fig. 25.

"Frumentaria *Sigma* et *Rhombos*;" Soldani, Testac. vol. i. pt. 3. p. 229, pl. 154. fig. *hh*, and pl. 155. fig. *ii*. D'Orb. *op. cit.* p. 299. no. 14.

"*Hab.* The Mediterranean."

A large round-edged variety of *S. planulata*, nearly circular in contour.

143. *Spiroloculina plicata*, D'Orb. Pl. VIII. fig. 26.

"Frumentaria *Sigma* et *Rhombos*;" Soldani, Testac. vol. i. pt. 3. p. 229, pl. 155. fig. *mm*. D'Orb. *op. cit.* p. 299. no. 15.

"*Hab.* The Mediterranean."

General outline similar to that of *S. nitida*; but the ultimate chamber is comparatively very large and crenate on its surface, the depressions running inwards from the outer margin.

144. *Triloculina gibba*, D'Orb. Pl. VIII. fig. 7.

"Frumentaria *tricostata*;" Soldani, Testac. vol. i. pt. 3. p. 232, pl. 157. figs. *I*, *K*. D'Orb. *op. cit.* p. 299. no. 3.

"*Hab.* Living in the Adriatic, near Rimini, and in the

South Seas at Rawack; fossil at Castel-Arquato." (Mediterranean, *Soldani*.)

A compactly made *Triloculina*, of the angular type, but lacking the equilateral regularity of *T. tricarinata* and *T. trigonula*.

145. *Triloculina reticulata*, D'Orb. Pl. VIII. fig. 18.

"*Frumentaria reticulata*;" *Soldani*, *Testac.* vol. i. pt. 3. p. 233, pl. 159. figs. *bb*, *cc*. D'Orb. *op. cit.* p. 299. no. 9.

"*Hab.* Recent in the Mediterranean, at the Island of St. Helena, and Shark Bay, Australia."

If there be any value of subgeneric sort in the number of visible chambers, the specimens indicated by these figures belong to *Quinqueloculina* rather than *Triloculina*.

146. *Triloculina inflata*, D'Orb. Pl. VIII. fig. 16.

"*Frumentarium nautiliforme*;" *Soldani*, *Testac.* vol. i. pt. 3. p. 233, pl. 159. fig. *aa*. D'Orb. *op. cit.* p. 300. no. 10.

"*Hab.* Recent in the Mediterranean; fossil in the neighbourhood of Dax, of Bordeaux, and of Soissons, and at Castel-Arquato." (Isola del Giglio, Mediterranean; and Rimini, Adriatic, *Soldani*.)

Apparently an irregular loose-growing *Quinqueloculina*; but it might with almost equal justice be placed under D'Orbigny's genus *Hauerina*. Well-developed specimens of this latter genus are very rare in a recent condition; whilst ill-grown *Quinqueloculinae*, like the figures, are common in littoral sands and muddy shallows.

147. *Triloculina tricostata*, D'Orb. Pl. VIII. fig. 20.

"*Frumentaria fasciculum*;" *Soldani*, *Testac.* vol. i. pt. 3. p. 229, pl. 154. fig. *Y*. D'Orb. *op. cit.* p. 300. no. 21.

"*Hab.* Fossil in the neighbourhood of Paris." (Mediterranean and Adriatic, *Soldani*.)

Apparently a young or few-ribbed specimen of *Quinqueloculina pulchella*. D'Orbigny, in his Vienna-Basin Monograph, figures a beautiful example of the same form under the name of *Q. Josephina*. When the number of costæ modifies to any extent the general morphological characters of the test, it may become a character of some subordinate value; but, taken by itself, it entirely breaks down as a specific or even varietal distinction.

148. *Triloculina Brongniartii*, D'Orb. Pl. VIII. fig. 9.

"*Frumentaria fœniculum*;" Soldani, Testac. vol. i. pt. 3. p. 229, pl. 154. figs. *bb*, *cc*. D'Orb. *op. cit.* p. 300. no. 23.

"*Hab.* The Antilles, and fossil at Castel-Arquato." (Mediterranean and Adriatic, *Soldani*.)

Though Soldani's figures are not without indications of the Quinqueloculine arrangement of chambers, they may be accepted as comprehending the finely striate Triloculine *Miliolæ*; and we may allow Walker & Jacob's trivial name (*Q. bicornis*) to stand for the *Quinqueloculinae* having similar ornamentation.

149. *Quinqueloculina aspera*, D'Orb. Pl. VIII. fig. 11.

"*Frumentaria Seminula*;" Soldani, Testac. vol. i. pt. 3. p. 228, pl. 152. fig. *B*. D'Orb. *op. cit.* p. 301. no. 11.

"*Hab.* The Mediterranean."

We can find nothing in Soldani's figure to justify the name "*aspera*." So far as appears, it represents only a flattish outspread example of the type *Q. seminulum*.

150. *Quinqueloculina vulgaris*, D'Orb. Pl. VIII. fig. 15.

"*Frumentaria Seminula*;" Soldani, Testac. vol. i. pt. 3. p. 228, pl. 152. fig. *E*. D'Orb. *op. cit.* p. 302. no. 33.

"*Hab.* The Mediterranean; the Adriatic, near Rimini; and the Antilles."

See note on no. 152, *Quinqueloculina secans*, to which species we refer this form.

151. *Quinqueloculina pulchella*, D'Orb.

Pl. VIII. fig. 19.

"*Frumentaria Seminula*," &c.; Soldani, Testac. vol. ii. p. 53, pl. 18. fig. *f*. D'Orb. *op. cit.* p. 303. no. 42.

"*Hab.* The Atlantic shores of France, and the Mediterranean." (Fossil at Borro Cieco, *Soldani*.)

The two figures *c* on the same plate manifestly belong to the same species. This name takes precedence for the varieties of *Quinqueloculina* having strong, bold, longitudinal costæ, and may include all such forms as *Q. Schreibersii*, D'Orb. For. Foss. Vien. p. 296, pl. 19. figs. 22-24.

152. *Quinqueloculina secans*, D'Orb. Pl. VIII. fig. 14.

"*Frumentaria Seminula*;" Soldani, Testac. vol. i. pt. 3. p. 228, pl. 152. fig. *C*. D'Orb. *op. cit.* p. 303. no. 43.

"*Hab.* The Adriatic and the Mediterranean." (Mediterranean, *Soldani*.)

We shall do best to take D'Orbigny's Model no. 96, rather than the Soldanian figures referred to, as the type of *Q. secans*; and with this in view we have no hesitation in placing No. 150 (*Q. vulgaris*), as well as the drawings indicated in the reference given above, under the same species. Indeed the drawing named *Q. vulgaris* by D'Orbigny more nearly resembles the "Model" than those do to which he gives the name *Q. secans*.

153. *Quinqueloculina seminulum*, Linné, sp.

Pl. VIII. fig. 10.

"*Frumentaria Seminula*;" Soldani, Testac. vol. i. pt. 3. p. 228, pl. 152. fig. A. D'Orb. op. cit. p. 303. no. 44.

"*Hab.* The shores of France and England, the Adriatic and the Mediterranean; fossil at Castel-Arquato." (Mediterranean, *Soldani*.)

Amongst all Soldani's figures we do not find one that is quite a good representative of the central type of the Milioline group. Possibly that selected by D'Orbigny is as near as any, but it approaches *Q. bicornis* in the partial striation of the later chambers.

154. *Quinqueloculina longirostris*, D'Orb.

Pl. VIII. fig. 8.

"*Frumentaria Seminula*;" Soldani, Testac. vol. i. pt. 3. p. 228, pl. 152. figs. F, H. D'Orb. op. cit. p. 303. no. 46.

"*Hab.* Fossil at Castel-Arquato." (Mediterranean, *Soldani*.)

A feeble intermediate form, best disposed of by being placed under *Triloculina oblonga*, Montagu, sp.

155. *Quinqueloculina Soldanii*, D'Orb. Pl. VIII. fig. 17.

"*Frumentaria Seminula*;" Soldani, Testac. vol. i. pt. 3. p. 228, pl. 152. fig. D. D'Orb. op. cit. p. 303. no. 48.

"*Hab.* The Mediterranean."

An attenuated variety of *Q. seminulum*, with partial striation at the base of the chambers.

156. *Adelosina lævigata*, D'Orb. Pl. VIII. fig. 12.

"*Frumentaria phialiformia lævia*;" Soldani, Testac. vol. i. pt. 3. p. 232, pl. 158. figs. S, T, U. D'Orb. op. cit. p. 304. no. 1.

"*Hab.* Fossil at Castel-Arquato." (Mediterranean, *Soldani*.)

The genus *Adelosina*, instituted by D'Orbigny and adopted by some subsequent writers, has by common consent been abandoned, since it has been shown that it only represents a

stage in the life-history of *Quinqueloculina*. The figures referred to are probably the young of *Q. secans* (*S*) and *Q. seminulum* (*T, U*).

157. *Adelosina semistriata*, D'Orb. Pl. VIII. fig. 13.

"*Frumentaria phialiformia striatula*;" Soldani, Testac. vol. i. pt. 3. p. 232, pl. 158. fig. *R*. D'Orb. *op. cit.* p. 304. no. 3.

"*Hab.* The Adriatic, near Rimini." (Mediterranean, *Soldani*.)

Fig. *Q* on the same plate would have better accorded with the names *semistriata* and *striatula*. It is true that *R* may be the young of a striate or even costate form.

158. *Adelosina Soldanii*, D'Orb. Pl. VIII. fig. 21.

"*Frumentaria phialiformia striatula*;" Soldani, Testac. vol. i. pt. 3. p. 232, pl. 157. fig. *M*. D'Orb. *op. cit.* p. 304. no. 4.

"*Hab.* The Adriatic, near Rimini." (Mediterranean, *Soldani*.)

This (like pl. 158. fig. *P*) is the young of *Quinqueloculina pulchella*.

APPENDIX.

To render it complete, our review of Soldani's 'Testaceographia' and of the 'Tableau Méthodique' still requires a few remarks concerning subsequent references made by D'Orbigny either to figures in Soldani's works not alluded to in the 'Tableau,' or to species alluded to in the 'Tableau' without description or reference to any illustration.

The memoirs which thus aid us in determining the meaning of the author with respect to a few out of the very large number of species enumerated in the 'Tableau,' which would otherwise lapse for want of definition, are those on the recent Foraminifera of Cuba, of the Canaries, and of South America, and on the fossil Foraminifera of the Vienna Basin.

We do not propose at present to speak generally of the Foraminifera described in these works, but to confine ourselves to the few species which stand in some relation either to the 'Testaceographia' or to the 'Tableau Méthodique.'

There is just a little difficulty in settling the order of precedence of the three first-named monographs. The best known edition of the Cuba memoir is the folio, written in Spanish and published in Paris in 1840; but we find that an earlier octavo edition in French, without plates, was issued in

1839. This has the following note, which does not appear in the folio work :—

“Indépendamment des espèces de Cuba décrites dans cet ouvrage, nous publions en ce moment trois autres faunes locales: 1, celle des Canaries, dans l'ouvrage de MM. Webb et Berthelot, Histoire naturelle des îles Canaries; 2, celle de l'Amérique méridionale, dans notre Voyage dans l'Amérique méridionale (une partie spéciale); 3, faune de la craie blanche du bassin de Paris, dans les Mémoires de la Société géologique de France.” (Footnote, p. xlvii.)

This note, and the fact that references are made in the two shorter papers to the ‘Cuba,’ determine the order which should be adopted in any question of precedence.

§ 1. D'ORBIGNY'S FORAMINIFERA OF THE ISLAND OF CUBA.

D'Orbigny, in his Cuba Monograph—‘Historia fisica, politica y natural de la Isla de Cuba: por D. Ramon de la Sagra; Foraminiferas por Alcides D'Orbigny,’ folio (pp. 180, 12 plates), Paris, 1840 [the French edition (8vo) was published in 1839]—describes and figures a few species enumerated in the ‘Tableau Méthodique,’ of which no previous description or reference to figures had been published, namely :—

1. *Cristellaria gibba*, D'Orb.

Cristellaria gibba, D'Orb. Ann. Sci. Nat. vol. vii. p. 292. no. 17; Foram. Cuba, p. 63, pl. 7. figs. 20, 21.

“Hab. The Antilles, and the Mediterranean near Corsica.”

This subvariety stands between *C. rotulata* and *C. italica*.

2. *Dendritina antillarum*, D'Orb.

Dendritina antillarum, D'Orb. Ann. Sci. Nat. vol. vii. p. 285. no. 3; Foram. Cuba, p. 77. no. 21, pl. 7. figs. 3-6.

“Hab. The sands of the island of Cuba, rare.”

A flattish specimen of *D. arbuscula*; Ann. Nat. Hist. ser. 3, vol. v. pp. 179, 180.

3. *Rosalina squamosa**, D'Orb.

Rotalia squamosa, D'Orb. Ann. Sci. Nat. vol. vii. p. 272. no. 8.

Rosalina squamosa, D'Orb. Foram. Cuba, p. 100. no. 43, pl. 3. figs. 12-14.

“Hab. Found plentifully, by D. Ramon de la Sagra, adhering to seaweeds on the shores of Cuba. Occurs also about Jamaica and other of the West-India Islands.”

* Misspelt “*squamosa*” by D'Orbigny throughout.

Figs. 18-20, in pl. 3 (*Rosalina Poeyi*, D'Orb.), represent the typical *Cymbalopora Poeyi* (Carpenter's 'Introd. Foram.' 1862, p. 215). *R. squamosa*, D'Orb., is the high-coned, livid-coloured, purple-topped *Cymbalopora* of the West Indies, common in shallow-water shell-beds, especially with *Strombus gigas*. Figs. 2-5 of the same plate (*Ros. bulloides*, D'Orb.) is a closed-in polystomellous form of the same, and is common in the tropics, both east and west. In *C. bulloides* the last septal wall closes in the whole umbilical face, and is multi-perforate, with large passages similar to those on its isomorph *Orbulina* (formed of *Globigerina* in an analogous manner) and in the wild Spirilline forms of *Pulvinulina* (Phil. Trans. vol. clv. p. 390).

4. *Rosalina opercularis*, D'Orb.

Rosalina opercularis, D'Orb. Ann. Sci. Nat. vol. vii. p. 271. no. 7; Foram. Cuba, p. 101. no. 45, pl. 3. figs. 24, 25, and pl. 4. fig. 1.

"*Hab.* The sands of Cuba and Martinique."

This is a subvariety of *Discorbina parisiensis*, with linear ornamentation on the concave face (Phil. Trans. vol. clv. p. 385).

5. *Rosalina semistriata*, D'Orb.

Rosalina semistriata, D'Orb. Ann. Sci. Nat. vol. vii. p. 271. no. 3; Foram. Cuba, p. 102. no. 47, pl. 3. figs. 15-17.

"*Hab.* The sands of the islands of Cuba, Jamaica, and Martinique."

An outspread and prickly *Discorbina*, related (as shown by gradations of form) to the high conical varieties of *D. pileolus*, D'Orb. sp., which connects *D. rosacea* with *D. parisiensis* mentioned above.

6. *Rosalina valvulata*, D'Orb.

Rosalina valvulata, D'Orb. Ann. Sci. Nat. vol. vii. p. 271. no. 4; Foram. Cuba, p. 103. no. 48, pl. 3. figs. 21-23.

"*Hab.* The sands of Cuba, Jamaica, Martinique, and other islands of the West Indies."

An inconspicuous subvariety of *Discorbina rosacea*; small and not fully developed. See the foregoing.

7. *Textularia cuneiformis*, D'Orb.

Textularia cuneiformis, D'Orb. Ann. Sci. Nat. vol. vii. p. 263. no. 18; Foram. Cuba, p. 138. no. 77, pl. 1. figs. 37-39.

"*Hab.* Fossil at Castel-Arquato; living in the sands of Cuba."

A narrow, many-chambered *Textularia*, belonging to the *T. sagittula* group.

8. *Triloculina suborbicularis*, D'Orb.

Triloculina suborbicularis, D'Orb. Ann. Sci. Nat. vol. vii. p. 300. no. 12; Foram. Cuba, p. 156. no. 94, pl. 10. figs. 9-11.

"*Hab.* Fossil at Castel-Arquato; recent in sands from the Antilles."

D'Orbigny figures in the Cuba Monograph three Triloculine *Miliolæ*, all with surface-ornamentation of delicate, parallel, longitudinal striæ, viz. *Triloculina Brongniartiana*, *Tr. Fichteliana*, and *Tr. suborbicularis*. These differ only in that ever variable character, the contour of the test, as determined by the greater or less ventricosity of the individual chambers. We propose to include all these under the term *T. Brongniartii*, the term applied by D'Orbigny to Soldani's figures.

We may here note that figs. 12-14, pl. 10 (*Triloculina labiosa*, D'Orb.), represent a Milioline form very closely approaching Reuss's genus *Chilostomella* in form.

Some Soldanian figures and some of the illustrations of the 'Tableau Méthodique' are referred to in the Cuba Monograph with respect to the following species; a detailed account has been previously given of each of these:—*Lingulina carinata*, pl. 1. figs. 13, 14; *Cristellaria crepidula*, pl. 8. figs. 17, 18; *Orbiculina numismalis*, pl. 8. figs. 4-16; *Rotalina* [*Planorbulina*] *rosea*, pl. 3. figs. 9-11; *Rosalina Parkinsoniana* [*Rotalia Beccarii*], pl. 4. figs. 25-27; *Calcarina calcar*, pl. 5. figs. 22-24; *Planorbulina vulgaris* (*mediterraneensis* in 'Tabl. Méth.'), pl. 6. figs. 11-15; *Triloculina oblonga*, pl. 10. figs. 3-5; and *Triloculina Brongniartiana* (called *Tr. Brongniartii* in the 'Tabl. Méth.'), pl. 10. figs. 6-8.

§ 2. D'ORBIGNY'S FORAMINIFERA OF THE CANARIES.

Species enumerated in the 'Tableau Méthodique,' and subsequently described and figured (for the first time) by D'Orbigny in his memoir on the Foraminifera of the Canaries, 'Histoire Naturelle des îles Canaries, par MM. P. Barker-Webb et Sabin Berthelot. Paris, 1835-49. Vol. II. Partie Foraminifères,' pp. 121-146, 3 planches, 4to, Paris, 1839. In this memoir the author refers his readers to the Cuba Monograph for the

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generic characters of the Foraminifera; therefore the latter book takes precedence of date.

1. *Rotalina contecta*, D'Orb.

Gyroïdina contecta, D'Orb., Ann. Sci. Nat. vol. vii. p. 278. no. 7.

Rotalina contecta, D'Orb., Foram. Canaries, p. 131. no. 17, pl. 2. figs. 16-18.

“*Hab.* In the Adriatic near Rimini, common; at the island of Teneriffe, less abundant.”

This is an umbonate *Planorbulina*, and may be said to be a thick, arrested form, belonging to the *Pl. ammonoides* group, and related to *Pl. Haidingeri* and *Pl. rosea*, agreeing with the last in its umbonate condition. (Phil. Trans. vol. clv. p. 379.)

2. *Rosalina valvulata*, D'Orb.

Rosalina valvulata, D'Orb. Ann. Sci. Nat. vol. vii. p. 271. no. 4; Foram. Canaries, p. 136. no. 28, pl. 2. figs. 19-21.

“*Hab.* Cape Carbet, Martinique; the island of Teneriffe; the Antilles.”

This is an outspread and nearly squamate form of *Discorbina rosacea*; Phil. Trans. vol. clv. p. 385.

3. *Quinqueloculina lævigata*, D'Orb.

Quinqueloculina lævigata, D'Orb. Ann. Sci. Nat. vol. vii. p. 301. no. 6; Foram. Canaries, p. 143. no. 43, pl. 3. figs. 31-33.

“*Hab.* Fossil in the neighbourhood of Paris; living, but very rare, on the shores of Teneriffe.”

There is no characteristic feature by which the form figured by D'Orbigny can be separated from the type *Q. seminulum*.

Soldani's figures are referred to in the Canaries Monograph with respect to the following species, all of which are redrawn for the work. As these have already been treated of in detail, a mere enumeration of their names will suffice.

Lingulina carinata, p. 124, pl. 1. figs. 5, 6; *Globigerina bulloides*, p. 132, pl. 2. figs. 1-3; *Planorbulina vulgaris*, p. 134, pl. 2. fig. 30; *Truncatulina lobata*, p. 134, pl. 2. figs. 22-24; *Truncatulina variabilis*, p. 135, pl. 2. fig. 29; and *Textularia sagittula*, p. 138, pl. 1. figs. 19-21.

The *Planorbulina vulgaris* is the *Pl. mediterraneensis* of the 'Tableau Méthodique.'

§ 3. D'ORBIGNY'S FORAMINIFERA OF SOUTH AMERICA.

Species mentioned in the 'Tableau Méthodique,' and subsequently described and figured by D'Orbigny in the Voyage dans l'Amérique Méridionale (le Brésil, la République Orientale de l'Uruguay, la République Argentine, la Patagonie, la République du Chili, la République de Bolivia, la République du Pérou), exécuté pendant les années 1826-33. Par Alcide D'Orbigny. Vol. V. 5^e partie, Foraminifères. 4to, Paris, 1839. In this monograph references are made to that of the Canaries; and this fact decides the order of date.

1. *Polystomella Lessonii*, D'Orb.

Polystomella Lessonii, D'Orb. Ann. Sci. Nat. vol. vii. p. 284. no. 6; Voy. Amér. Mérid. p. 29. no. 17, pl. 3. figs. 1, 2.

"*Hab.* The shores of Patagonia, to the south of the mouth of the Rio Negro, and in sands from the Falkland Islands."

This appears to be a subvariety of *Polystomella macella*, F. & M.

Soldani's figures of *Globigerina bulloides* are referred to amongst other representations of the same species in this work (p. 9, note, & p. 37); no fresh drawing of it is given.

§ 4. D'ORBIGNY'S FOSSIL FORAMINIFERA OF THE VIENNA BASIN.

Eight other species enumerated in the 'Tableau Méthodique' were without reference to figures or definition of characters until the publication of D'Orbigny's Vienna-Basin Monograph in 1846 (Foraminifères fossiles du Bassin tertiaire de Vienne, par Alcide d'Orbigny. 4to, Paris, 1846). They are as follow:—

1. *Textularia carinata*, D'Orb.

Textularia carinata, Ann. Sci. Nat. vol. vii. p. 263. no. 23; For. Foss. Vien. p. 247, pl. 14. figs. 32-34.

"*Hab.* Living at Rimini, in the Adriatic; fossil at Coroncina, near Sienna, and at Nussdorf, in Austria."

A good subvarietal form of *Textularia*, with limbate sutures and a wide, thin, dentate, marginal carina.

2. *Clavulina communis*, D'Orb.

Clavulina communis, Ann. Sci. Nat. vol. vii. p. 268. no. 4; For. Foss. Vien. p. 196, pl. 12. figs. 1, 2.

"*Hab.* Living in the Mediterranean (off Corsica) and in the Adriatic (at Rimini); fossil at Castel-Arquato (Italy), the neighbourhood of Dax, and at Nussdorf, in Austria."

The common Tertiary form of *Clavulina*, abundant in the London Clay. See the 'Geologist,' vol. vii. p. 86.

3. *Bulimina elongata*, D'Orb.

Bulimina elongata, Ann. Sci. Nat. vol. vii. p. 269. no. 9; For. Foss. Vien. p. 187, pl. 11. figs. 19, 20.

"*Hab.* Recent at Rimini; fossil at Nussdorf, Vienna Basin."

This is one of the endless modifications of *Bulimina*.

4. *Robulina ariminensis*, D'Orb.

Robulina ariminensis, Ann. Sci. Nat. vol. vii. p. 289. no. 15; For. Foss. Vien. p. 95, pl. 4. figs. 8, 9.

"*Hab.* Living in the Adriatic at Rimini; fossil at Baden near Vienna, and at Bohitsch in Styria."

A carinate *Cristellaria*, with depressed sutures and well-defined, concentric, superficial costæ.

5. *Nonionina bulloides*, D'Orb.

Nonionina bulloides, Ann. Sci. Nat. vol. vii. p. 293. no. 2; For. Foss. Vien. p. 107, pl. 5. figs. 9, 10.

"*Hab.* Fossil at Nussdorf, in Austria, and at Coroncina, near Sienna."

Neither this nor the "species" immediately preceding it in the 'Tableau' (*N. sphaeroides*) belongs to the Nonionine group. They both belong to *Pullenia sphaeroides*, D'Orb. sp. See Carpenter's 'Introd. Foram.' p. 184; Phil. Trans. vol. clv. p. 368; and Ann. Nat. Hist. ser. 3. vol. xvi. p. 26.

6. *Nonionina granosa*, D'Orb.

Nonionina granosa, Ann. Sci. Nat. vol. vii. p. 294. no. 8; For. Foss. Vien. p. 110, pl. 5. figs. 19, 20.

"*Hab.* Fossil at Nussdorf (not common), and at Coroncina."

One of the Nonionine subvarieties of *Polystomella*; see Ann. N. H. ser. 3. vol. v. pp. 101, 102.

7. *Nonionina communis*, D'Orb.

Nonionina communis, Ann. Sci. Nat. vol. vii. p. 294. no. 20; For. Foss. Vien. p. 106, pl. 5. figs. 7, 8.

"*Hab.* Living in the Mediterranean and the Adriatic, in the West Indies, and off Madagascar. Fossil at Bordeaux, at Nussdorf in Austria, and at Coroncina and Castel-Arquato in Italy."

This differs from *Nonionina scapha* only in being less convex and turgid. There must be stout and emaciated specimens of Foraminifera as of other animals; but this, of course, does not necessitate specific subdivision. Ann. N. H. ser. 3. vol. v. p. 102.

8. *Quinqueloculina triangularis*, D'Orb.

Quinqueloculina triangularis, Ann. Sci. Nat. vol. vii. p. 302. no. 34; For. Foss. Vien. p. 288, pl. 18. figs. 7-9.

"*Hab.* Living in the Adriatic and off the Island of St. Helena; fossil at Nussdorf, at Coroncina, at Castel-Arquato, and in the neighbourhood of Dax."

A subangular modification of *Quinqueloculina seminulum*, hardly worth a distinguishing name.

In addition to the above, the Vienna-Basin Monograph contains references to a large number of other species mentioned in the 'Tableau,' to which we have already adverted as having been illustrated by the original figures in the 'Ann. Sci. Nat.' vol. vii., models, illustrations by earlier authors, and the like. These are all refigured in the Vienna Monograph. An enumeration of names will suffice in the present place:—

Glandulina lævigata, p. 29, pl. 1. figs. 4, 5.

Nodosaria hispida (*N. hirsuta* of the 'Tableau'), p. 35, pl. 1. figs. 24, 25.

— *bacillum*, Defr., p. 40, pl. 1. figs. 40-47.

Marginulina hirsuta, p. 69, pl. 3. figs. 17, 18.

Cristellaria cassis, F. & M., p. 91, pl. 4. figs. 4-7.

Textularia lævigata, p. 243, pl. 14. figs. 14-16.

Guttulina communis, p. 224, pl. 13. figs. 6-8.

— *problema*, p. 224, pl. 12. figs. 26-28.

Globulina gibba, p. 227, pl. 13. figs. 13, 14.

Uvigerina pygmaea, p. 190, pl. 11. figs. 25, 26.

Rotalina Brongniartii (*Rotalia* in the 'Tableau'), p. 158, pl. 8. figs. 22-24.

— *Soldanii* (*Gyroïdina* in the 'Tableau'), p. 155, pl. 8. figs. 10-12.

Globigerina bulloides, p. 163, pl. 9. figs. 4-6.

Truncatulina lobatula, W. & J. (*tuberculata*, 'Tabl. Méth.'), p. 168, pl. 9. figs. 18-23.

Planorbulina mediterranensis (*vulgaris* in the Cuba Monograph), p. 166, pl. 9. figs. 15-17.

Orbulina calcar (*R. aculeata* of the 'Tableau'), p. 99, pl. 4. figs. 18-20.

— *echinata* (*R. calcar* of the 'Tableau'), p. 100, pl. 4. figs. 21, 22.

— *cultrata*, Montfort, p. 96, pl. 4. figs. 10-13.

— *imperatoria* (*R. vortex* in the 'Tableau,' stated to differ from Fichtel and Moll's species), p. 104, pl. 5. figs. 5, 6.

Polystomella crispa, Linné, sp., p. 125, pl. 6. figs. 9-14.

Nummulina radiata, Montfort, sp., p. 115, pl. 5. figs. 23, 24.

Alveolina melo, F. & M., sp., p. 147, pl. 7. figs. 15, 16.

Triloculina gibba, p. 274, pl. 16. figs. 22-24.

Quinqueloculina longirostra, p. 291, pl. 18. figs. 25-27.

Adelosina laevigata, p. 302, pl. 20. figs. 22-24.

The figures in Soldani's 'Testaceographia' are referred to in the Vienna Monograph with respect to the following species. As they are refigured by D'Orbigny from specimens collected in the Austrian Tertiaries, we have thought it needless to include them amongst the outline sketches appended to the present paper.

1. *Orbulina universa*, D'Orb.*

"*Sphærule vitrea*;" Soldani, Testac. vol. i. pt. 2. p. 116, pl. 119. figs. I, K, L, M.

"*Sphærule hispida*," Id. ibid. vol. ii. p. 53, pl. 17. fig. X, and pl. 18. fig. a.

Orbulina universa, D'Orb. For. Foss. Vien. p. 22, pl. 1. fig. 1.

"*Hab.* Very common at Rimini and on the shores of the Adriatic. We have also found it in sands from the coast of Algiers and from Teneriffe. It inhabits, but more rarely, the sand of Cuba, Jamaica, St. Thomas's, Guadaloupe, and Martinique; and we have it again from the Indian seas." (Foram. de Cuba.)

"Fossil in the Tertiary sands of Baden (Austria) and Coroncina, near Sienna, in Tuscany. Recent in the Adriatic, Mediterranean, and Atlantic." (For. Foss. Vien.)

(Mediterranean, *Soldani*.)

This is a well-known species. The *hispid* figures are to be accepted as *Orbulinae* with caution; for, though the closely allied *Globigerina* becomes highly hispid under some circumstances, we have not yet seen *Orbulinae* with nearly such aciculate or hispid surface.

* Foram. Cuba, 1839, p. 3. no. 1, pl. 1. fig. 1; Foram. Canaries, p. 122, pl. 1. fig. 1.

2. *Nodosaria affinis*, D'Orb.

"Orthoceratia conico-cylindroidea;" Soldani, Saggio, p. 107, pl. 5. figs. 37, *m*, *M*.

"Orthoceras *Feniculum*;" Soldani, Testac. vol. i. pt. 2. p. 91, pl. 94. fig. Z.

"Hortoceratia," Id. ibid. vol. ii. App. p. 141, pl. 5. figs. 37, *m*, *M*.

Nodosaria affinis, D'Orb. For. Foss. Vien. p. 39, pl. 1. figs. 36-39.

"*Hab.* Baden near Vienna; not common." (Recent, Mediterranean; fossil, Coroncina; *Soldani*.)

This is the straight few-ribbed *Nodosaria raphanus*, not uncommon in both the recent and the fossil state.

3. *Dentalina inornata*, D'Orb.

"Orthoceratia *lavina*" &c.; Soldani, Testac. vol. i. pt. 2. p. 92, pl. 97. fig. *b b* [F]. (D'Orbigny gives this reference as pl. 97. fig. O, which is manifestly an error, as no figure O appears on pl. 97. Probably the figure we have noted is what was intended.)

Dentalina inornata, D'Orb. For. Foss. Vien. p. 44, pl. 1. figs. 50, 51.

"*Hab.* Fossil, Baden near Vienna; not common." (Mediterranean, *Soldani*.)

There is no special character to distinguish this from *Dentalina communis*, D'Orb.

4. *Dentalina floscula*, D'Orb.

"Orthoceratia *Flosculi*;" Soldani, Testac. vol. ii. p. 34, pl. 9. fig. *L*.

Dentalina floscula, D'Orb. For. Foss. Vien. p. 50, pl. 2. figs. 16, 17.

"*Hab.* Living in the Adriatic, at Rimini; fossil in the Baden beds, Vienna Basin." (Near Sienna, *Soldani*.)

This is the setose variety of *Dentalina* corresponding to *Nodosaria hispida* in the straight series.

5. *Cristellaria lanceolata*, D'Orb.

"Nautili *lituitati*;" Soldani, Testac. vol. i. pt. 1. p. 64, pl. 57. fig. Z, and pl. 58. fig. *a a*.

Cristellaria lanceolata, D'Orb. For. Foss. Vien. p. 89, pl. 3. figs. 41, 42.

"*Hab.* Fossil at Baden in Austria, and in the neighbourhood of Sienna." (Mediterranean, *Soldani*.)

This elegant, acute-ovate, and keeled *Cristellaria*, already referred to (p. 166), is the elongate flattened subvariety of *Cr. cultrata*, having the same relation to the latter as *Cr. crepidula* has to *Cr. rotulata*.

6. *Nonionina Soldanii*, D'Orb.

"Nautilus *Melo*;" Soldani, Testac. vol. i. pt. 1. p. 59, pl. 46. fig. *q q*.

Nonionina Soldanii, D'Orb. For. Foss. Vien. p. 109, pl. 5. figs. 15, 16.

"*Hab.* Fossil at Nussdorf, common; and at Coroncina, near Sienna." (Mediterranean, *Soldani*.)

There seems no good reason for separating this from *Nonionina umbilicata*; the only suggested difference is a somewhat excessive number of conspicuous pseudopodial perforations. Soldani's figures are more doubtful than D'Orbigny's, and, indeed, in all probability represent a nautiloid *Lituola*.

7. *Rotalina Boueana*, D'Orb.

"*Hammonia*;" Soldani, Testac. vol. i. pt. 1. p. 56, pl. 36. fig. X.
Rotalina Boueana, D'Orb. For. Foss. Vien. p. 152, pl. 7. figs. 25-27.

"*Hab.* Living in the Adriatic; fossil in the Nussdorf and Baden beds, Vienna Basin." (Mediterranean, *Soldani*.)

This is a variety of *Pulvinulina repanda* (Phil. Trans. vol. clv. p. 353) near *P. pulchella*.

8. *Asterigerina planorbis*, D'Orb.

"*Ammonia Planorbes*;" Soldani, Testac. vol. ii. App. p. 140, pl. 3. figs. 24, *m*, *M*, *N*. (Saggio, p. 104, pl. 3. figs. 24, *m*, *M*, *N*.)
Asterigerina planorbis, D'Orb. For. Foss. Vien. p. 205, pl. 11. figs. 1-3.

"*Hab.* Fossil at Nussdorf, Austria, and at Coroncina, near Sienna."

The same as *Discorbina rosacea*, D'Orb. sp., Modèle No. 39.

9. *Anomalina austriaca*, D'Orb.

"*Hammonita*;" Soldani, Testac. vol. i. pt. 1. p. 66, pl. 60. fig. C*.
Anomalina austriaca, D'Orb. For. Foss. Vien. p. 172, pl. 10. figs. 4-9.

"*Hab.* Fossil at Nussdorf, rare." (Mediterranean, *Soldani*.)

A *Planorbulina*, near *Pl. ammonoides*, D'Orb. sp.

10. *Textularia abbreviata*, D'Orb.

"*Nautili amphorarii*;" Soldani, Saggio, p. 108, pl. 7. figs. 46, *c*, *C*.
Nautilus amphorarius," Testac. vol. ii. App. p. 141, pl. 7. figs. 46, *c*, *C*.
Textularia abbreviata, For. Foss. Vien. p. 249, pl. 15. figs. 7-12.

"*Hab.* Fossil, Baden and Nussdorf, in Austria; Coroncina in Italy."

Whatever D'Orbigny intended to represent by his figures of the *Textulariæ* before him, Soldani's figure is very much like that of a *Polymorphina*.

Lastly, we have to remark that, after all the references made to Soldanian and other Foraminifera in the foregoing analyses of the 'Tableau Méthodique' and other monographs by D'Orbigny, there are still in the 'Tableau' 253 species which (unless they be figured and described from his collec-

* D'Orbigny's reference to Soldani as "pl. 90, var. 196" is wrong; it should be "pl. 60, var. 196."

tion) must lapse entirely, because there is no indication of the author's meaning and intention, either by description or by reference to figures.

INDEX TO THE PLATES.

ARRANGED IN THE ORDER OF THE CORRECTED NOMENCLATURE OF THE SPECIES*.

FORAMINIFERA IMPERFORATA.

MILIOLIDA.

No.	Corrected Name.	Plate.	Fig.	D'Orbigny's Name.
97	<i>Cornuspira foliacea</i> (?), <i>Philippi</i> , sp.	8	1	<i>Soldania limia</i> .
98	— — — (?), <i>D'Orb.</i> sp.	8	2	<i>Soldania orbicularis</i> .
99	— — — ? (<i>Spirillina</i> ?)	8	3	<i>Soldania annulata</i> .
136	<i>Biloculina ringens</i> , <i>Lamarck</i> , sp.	8	4	<i>Biloculina bulloides</i> .
138	— — — <i>depressa</i> , <i>D'Orb.</i>	8	5	<i>Biloculina depressa</i> .
137	— — — <i>elongata</i> , <i>D'Orb.</i>	8	6	<i>Biloculina elongata</i> .
144	<i>Triloculina gibba</i> , <i>D'Orb.</i>	8	7	<i>Triloculina gibba</i> .
154	— — — <i>oblonga</i> , <i>Montagu</i>	8	8	<i>Quinqueloculina longirostris</i> .
148	— — — <i>Brongniartii</i> , <i>D'Orb.</i>	8	9	<i>Triloculina Brongniartii</i> .
153	<i>Quinqueloculina seminulum</i> , <i>Linn.</i> sp. ?	8	10	<i>Quinqueloculina seminulum</i> , <i>Linn.</i> [sp.
149	— — —	8	11	<i>Quinqueloculina aspera</i> .
156	— — — (young) ?	8	12	<i>Adelosina lævigata</i> .
157	— — — (young) ?	8	13	<i>Adelosina semistriata</i> .
152	— — — <i>secans</i> , <i>D'Orb.</i>	8	14	<i>Quinqueloculina secans</i> .
150	— — —	8	15	<i>Quinqueloculina vulgaris</i> .
146	— — — <i>inflata</i> , <i>D'Orb.</i>	8	16	<i>Triloculina inflata</i> .
155	— — — <i>Soldanii</i> , <i>D'Orb.</i>	8	17	<i>Quinqueloculina Soldanii</i> .
145	— — — <i>reticulata</i> , <i>D'Orb.</i>	8	18	<i>Triloculina reticulata</i> .
151	— — — <i>pulchella</i> , <i>D'Orb.</i>	8	19	<i>Quinqueloculina pulchella</i> .
147	— — — (young).	8	20	<i>Triloculina tricostrata</i> .
158	— — — (very young)	8	21	<i>Adelosina Soldanii</i> .
141	<i>Spiroloculina limbata</i> , <i>D'Orb.</i>	8	22	<i>Spiroloculina limbata</i> .
139	— — — <i>planulata</i> , <i>Lamk.</i> sp.	8	23	<i>Spiroloculina depressa</i> .
140	— — — <i>nitida</i> , <i>D'Orb.</i>	8	24	<i>Spiroloculina nitida</i> .
142	— — — <i>rotundata</i> , <i>D'Orb.</i>	8	25	<i>Spiroloculina rotundata</i> .
143	— — — <i>plicata</i> , <i>D'Orb.</i>	8	26	<i>Spiroloculina plicata</i> .
100	<i>Vertebralina striata</i> , <i>D'Orb.</i>	8	27	<i>Vertebralina striata</i> .
103	<i>Peneroplis pertusus</i> , <i>Forskål</i> , sp.	8	28	<i>Peneroplis planatus</i> , <i>F. & M.</i> sp.

LITUOLIDA.

24	<i>Lituola scorpiurus</i> , <i>Montf.</i> sp.	9	29	<i>Nodosaria</i> (<i>Dentalina</i>) <i>scorpiurus</i> , <i>Montf.</i> sp.
6	— — — <i>dubia</i> , <i>D'Orb.</i> sp.	9	30	<i>Nodosaria dubia</i> .
117	— — — <i>rugosa</i> , <i>D'Orb.</i> sp.	9	31	<i>Robulina rugosa</i> .
4	<i>Clavulina clavulus</i> (?), <i>Lamk.</i> sp.	9	32	<i>Nodosaria orthocera</i> .

* It must be observed that this *Index* is not an epitome of the species mentioned in the foregoing memoirs. Only the Soldanian figures which have been selected and copied are here alluded to.

FORAMINIFERA PERFORATA.

LAGENIDA.

No.	Corrected Name.	Plate.	Fig.	D'Orbigny's Name.
15	Lagena melo, <i>D'Orb.</i> (bilocular) ..	9	33	Nodosaria cancellata.
1	Glandulina lævigata, <i>D'Orb.</i>	9	34	Nodosaria (Glandulina) lævigata.
8	Nodosaria glabra, <i>D'Orb.</i>	9	35	Nodosaria glabra.
2	— ovicula, <i>D'Orb.</i>	9	36	Nodosaria ovicula.
9	— pyrula, <i>D'Orb.</i>	9	37	Nodosaria pyrula.
5	— semistriata, <i>D'Orb.</i>	9	38	Nodosaria semistriata.
11	— raphanus, <i>Linn.</i> sp.	9	39	Nodosaria scalaris.
12	— — (monstrous)	9	40	Nodosaria sulcata.
13	— raphanistrum, <i>Linn.</i> sp.	9	41	Nodosaria rapa.
14	— scalaris, <i>Batsch</i> , sp.	9	42	Nodosaria longicauda.
16	— Soldanii, <i>D'Orb.</i>	9	43	Nodosaria Soldanii.
19	— nitida, <i>D'Orb.</i>	9	44	Nodosaria nitida.
3	— hispida, <i>D'Orb.</i>	9	45	Nodosaria hirsuta.
20	Dentalina communis, <i>D'Orb.</i>	9	46	Nodosaria (Dentalina) communis.
21	— — <i>subvar.</i> obliqua, <i>D'Orb.</i> ..	9	47	N. (Dentalina) obliqua.
10	— filiformis, <i>D'Orb.</i>	9	48	Nodosaria filiformis.
22	— arcuata, <i>D'Orb.</i>	9	49	N. (Dentalina) arcuata.
23	— carinata, <i>D'Orb.</i>	9	50	N. (Dentalina) carinata.
7	— interrupta, <i>D'Orb.</i>	9	51	Nodosaria interrupta.
25	— aciculata, <i>D'Orb.</i>	9	52	N. (Dentalina) aciculata.
18	— flexuosa, <i>D'Orb.</i>	9	53	Nodosaria flexuosa.
27	— substriata, <i>D'Orb.</i>	9	54	N. (Dentalina) substriata.
17	— nodosa, <i>D'Orb.</i>	9	55	Nodosaria nodosa.
28	— cornicula, <i>D'Orb.</i>	9	56	N. (Dentalina) cornicula.
26	— obliqua, <i>Linn.</i> sp.	9	57	N. (Dentalina) Cuvieri.
36	Vaginulina striata, <i>D'Orb.</i>	9	58	Vaginulina striata.
37	— marginata, <i>D'Orb.</i>	9	59	Vaginulina marginata.
38	— caudata, <i>D'Orb.</i>	9	60	Vaginulina caudata.
33	Lingulina carinata, <i>D'Orb.</i>	9	61	Lingulina carinata.
41	— — (dimorphous var.)	9	62	Marginulina carinata.
34	— alata, <i>D'Orb.</i>	9	63	Lingulina alata.
31	Fronicularia pupa, <i>D'Orb.</i>	10	64	Fronicularia pupa.
32	— digitata, <i>D'Orb.</i>	10	65	Fronicularia digitata.
29	— alata, <i>D'Orb.</i>	10	66	Fronicularia alata.
30	— striata, <i>D'Orb.</i>	10	67	Fronicularia striata.
43	Marginulina lævigata, <i>D'Orb.</i>	10	68	Marginulina lævigata.
46	—, sp. (cast)	10	69	Marginulina connecta.
44	— lituus, <i>D'Orb.</i>	10	70	Marginulina lituus.
45	— lobata, <i>D'Orb.</i>	10	71	Marginulina lobata.
39	— raphanus, <i>D'Orb.</i>	10	72	Marginulina raphanus.
42	— —	10	73	Marginulina subtilius.
47	Planularia auris, <i>DeFrance</i>	10	74	Planularia auris, <i>DeFr.</i>
49	— rostrata, <i>D'Orb.</i>	10	75	Planularia rostrata.
127	Cristellaria elongata, <i>D'Orb.</i>	10	76	Cristellaria elongata.
48	— —	10	77	Planularia crepidula, <i>F. & M.</i> sp.
128	— —	10	78	Cristellaria bilobata.
133	— italica, <i>DeFr.</i> sp.	10	79	Cristellaria (Saracenaria) Italica,
119	— rotulata, <i>Lamk.</i>	10	80	Robulina plicata. [<i>DeFr.</i>
105	— vortex, <i>F. & M.</i> sp.	10	81	Robulina orbicularis.

No.	Corrected Name.	Plate.	Fig.	D'Orbigny's Name.
106	<i>Cristellaria vortex</i> , <i>F. & M.</i> sp.	10	82	<i>Robulina vortex</i> , <i>F. & M.</i> sp.
94	— <i>carinata</i> , <i>D'Orb.</i> sp.	10	83	<i>Soldania carinata</i> .
104	— <i>cultrata</i> , <i>Montf.</i> sp.	10	84	<i>Robulina cultrata</i> , <i>Montf.</i> sp.
107	— <i>Soldanii</i> , <i>D'Orb.</i> sp.	10	85	<i>Robulina Soldanii</i> .
123	— <i>cassis</i> , <i>F. & M.</i> sp.	10	86	<i>Cristellaria cassis</i> , <i>F. & M.</i> sp.
124	— —————	10	87	<i>Cristellaria Soldanii</i> .
125	— — (feeble)	10	88	<i>Cristellaria nitida</i> .
108	— — (young)	10	89	<i>Robulina marginata</i> .
113	— <i>rosacea</i> , <i>D'Orb.</i> sp.	10	90	<i>Robulina rosacea</i> .
115	— <i>calcar</i> , <i>Linn.</i> sp.	10	91	<i>Robulina aculeata</i> .
120	— —————	10	92	<i>Robulina rotundata</i> .
109	— —————	10	93	<i>Robulina radiata</i> .
110	— —————	10	94	<i>Robulina pulchella</i> .
111	— —————	10	95	<i>Robulina lævigata</i> .
114	— <i>rostrata</i> , <i>Montf.</i> sp.	10	96	<i>Robulina calcar</i> , <i>Linn.</i> sp.
129	— — (?)	11	97	<i>Cristellaria aculeata</i> .
132	— —————	11	98	<i>Cristellaria papillosa</i> .
126	— —————	11	99	<i>Cristellaria marginata</i> .
121	— <i>margaritacea</i> , <i>Montf.</i> sp.	11	100	<i>Cristellaria consecta</i> .
122	— <i>navicularis</i> , <i>Montf.</i> sp.	11	101	<i>Cristellaria navicularis</i> , <i>Montf.</i> sp.
130	— <i>tuberculata</i> , <i>D'Orb.</i>	11	102	<i>Cristellaria tuberculata</i> .
131	— —————	11	103	<i>Cristellaria elegans</i> .
64	<i>Polymorphina lactea</i> , <i>W. & J.</i> sp. . .	11	104	<i>Polymorphina</i> (<i>Globulina</i>) <i>ovata</i> .
62	— <i>compressa</i> , <i>D'Orb.</i>	11	105	<i>Polymorphina tuberosa</i> .
63	— <i>Soldanii</i> , <i>D'Orb.</i>	11	106	<i>Polymorphina Soldanii</i> .
65	— <i>gutta</i> , <i>D'Orb.</i>	11	107	<i>Polymorphina</i> (<i>Pyrulina</i>) <i>gutta</i> .
61	<i>Dimorphina tuberosa</i> , <i>D'Orb.</i>	11	108	<i>Dimorphina tuberosa</i> .
66	<i>Uvigerina pygmæa</i> , <i>D'Orb.</i>	11	109	<i>Uvigerina pygmæa</i> .
67	— —————	11	110	<i>Uvigerina nodosa</i> .
68	— —————	11	111	<i>Uvigerina nodosa</i> , <i>var. β</i> .

GLOBIGERINIDA.

81	<i>Globigerina bulloides</i> , <i>D'Orb.</i>	11	112	<i>Globigerina bulloides</i> .
83	— <i>helicina</i> , <i>D'Orb.</i>	11	113	<i>Globigerina helicina</i> .
55	<i>Textularia sagittula</i> , <i>Defr.</i>	11	114	<i>Textularia sagittula</i> , <i>Defr.</i>
51	— <i>gibbosa</i> , <i>D'Orb.</i>	11	115	<i>Textularia obtusa</i> .
52	— —————	11	116	<i>Textularia lævigata</i> .
53	— —————	11	117	<i>Textularia punctulata</i> .
54	— —————	11	118	<i>Textularia gibbosa</i> .
58	— —————	11	119	<i>Textularia tuberosa</i> .
57	— ?	11	120	<i>Textularia caudata</i> .
35	<i>Grammostomum pennatula</i> , <i>Batsch</i> , sp.	11	121	<i>Lingulina Soldanii</i> .
59	— <i>pupa</i> , <i>D'Orb.</i>	11	122	<i>Vulvulina pupa</i> .
60	— <i>elegans</i> , <i>D'Orb.</i>	11	123	<i>Vulvulina elegans</i> .
50	<i>Bigenerina lævigata</i>	11	124	<i>Bigenerina lævigata</i> .
40	— ? (<i>Lituola</i> ?)	11	125	<i>Marginulina hirsuta</i> .
56	<i>Bulimina aculeata</i> , <i>D'Orb.</i>	11	126	<i>Textularia echinata</i> .
69	— —————	11	127	<i>Bulimina trilobata</i> .
70	— —————	11	128	<i>Bulimina aculeata</i> .
82	<i>Cassidulina oblonga</i> , <i>D'Orb.</i> sp. . . .	11	129	<i>Globigerina elongata</i> .
78	<i>Planorbulina Ungeriana</i> , <i>D'Orb.</i> sp. .	12	130	<i>Rotalia</i> (<i>Turbinulina</i>) <i>Siennensis</i> .

No.	Corrected Name.	Plate.	Fig.	D'Orbigny's Name.
89	<i>Planorbulina rotula</i> , <i>D'Orb.</i> sp.	12	131	<i>Planulina Ariminensis</i> .
91	— <i>Soldanii</i> , <i>D'Orb.</i> sp.	12	132	<i>Planulina Soldanii</i> .
92	— <i>mediterraneensis</i> , <i>D'Orb.</i>	12	133	<i>Planorbulina Mediterraneensis</i> .
96	— ? (fragment)	12	134	<i>Soldania nitida</i> .
135	— <i>umbilicata</i>	12	135	<i>Nonionina umbilicata</i> .
86	<i>Truncatulina lobatula</i> , <i>W. & J.</i> sp. ..	12	136	<i>Truncatulina tuberculata</i> .
90	— — (? young)	12	137	<i>Planulina incerta</i> .
88	— <i>tuberosa</i> , <i>F. & M.</i> sp.	12	138	<i>Truncatulina variabilis</i> .
87	— <i>refulgens</i> , <i>Montf.</i> sp.	12	139	<i>Truncatulina refulgens</i> , <i>Montf.</i> sp.
72	<i>Pulvinulina repanda</i> , <i>F. & M.</i> sp.	12	140	<i>Rosalina Mediterraneensis</i> .
71	— <i>mediterraneensis</i> , <i>D'Orb.</i> sp.	12	141	<i>Rosalina Mediterraneensis</i> .
79	— <i>elegans</i> , <i>D'Orb.</i> sp.	12	142	<i>Rotalia (Turbinulina) elegans</i> .
75	— <i>auricula</i> , <i>F. & M.</i> sp.	12	143	<i>Rotalia Brongniartii</i> .
73	— <i>Soldanii</i> , <i>D'Orb.</i> sp.	12	144	<i>Rosalina Soldanii</i> .
76	— <i>communis</i> , <i>D'Orb.</i> sp.	12	145	<i>Rotalia communis</i> .
93	— <i>vermiculata</i> , <i>D'Orb.</i> sp.	12	146	<i>Planorbulina vermiculata</i> .
77	<i>Rotalia Beccarii</i> , <i>Linn.</i> sp.	12	147	<i>Rotalia (Turbinulina) Italica</i> .
74	— — (?)	12	148	<i>Rosalina Soldanii</i> .
80	— <i>ammoniformis</i> , <i>D'Orb.</i>	12	149	<i>Rotalia (Turbinulina) ammoni-</i>
84	— <i>orbicularis</i> , <i>D'Orb.</i> sp.	12	150	<i>Gyroïdina lævigata</i> . [formis.
85	— <i>Soldanii</i> , <i>D'Orb.</i> sp.	12	151	<i>Gyroïdina Soldanii</i> .

NUMMULINIDA.

118	<i>Amphistegina</i> ?	12	152	<i>Robulina nitida</i> .
95	<i>Nummulina exponents</i> , <i>Sow.</i> sp.	12	153	<i>Soldania spirorbis</i> .
101	<i>Polystomella macella</i> , <i>F. & M.</i> sp. ..	12	154	<i>Polystomella crispa</i> , <i>Linn.</i> sp.
102	— <i>crispa</i> , <i>Linn.</i> sp.	12	155	<i>Polystomella strigillata</i> , <i>F. & M.</i> sp.
112	— <i>striatopunctata</i> , <i>F. & M.</i> sp.	12	156	<i>Robulina sulcata</i> .
116	<i>Nonionina umbilicula</i> , <i>Montagu</i> , sp.	12	157	<i>Robulina Planciana</i> .
134	— <i>pompilioides</i> , <i>F. & M.</i> sp.	12	158	<i>Nonionina melo</i> .

XXXII.—*Descriptions of two new Species of Humming-birds belonging to the Genera Eupherusa and Cyanomyia.* By D. G. ELLIOT, F.L.S., F.Z.S., &c.

Eupherusa poliocerca.

Top of head and upper parts rich bronzy green; entire under parts brilliant grass-green. Wings purple, tertials bright chestnut. Upper tail-coverts similar to the back but more reddish; under tail-coverts long, pure white; two central tail-feathers metallic olive-green, purplish at the tips; remaining feathers white, purplish grey on the edges of the outer webs and at the tips. Bill black; feet flesh-colour. Total length $3\frac{3}{4}$ inches; wing $2\frac{1}{2}$ inches, tail $1\frac{5}{8}$ inch, bill $\frac{3}{4}$ inch.

Hab. Putla, Mexico.